

## **Rejections Overcome by New Claims**

### **The Rejection Of Claim 1 On Georgalas Is Overcome By New Claim 42**

The OA rejected independent claim 1 on Georgalas. Claim 1 has been replaced by new Claim 42 to more clearly define patentably Applicant's invention over this reference. Applicant requests reconsideration of this rejection, if considered as applying to new Claim 42, for the following reasons:

- 1) The novel physical features of new Claim 42 produce new, superior, unsuggested, and unexpected results and hence are unobvious and patentable over this reference.
- 2) Elements in the prior-art have been omitted, and by the omission of elements the prior-art version is thus made simpler without loss of capability.
- 3) The references (Georgalas, et. al.) are misunderstood in that they do not teach what the OA relies upon them as supposedly teaching.
- 4) The invention is contrary to the teachings of the prior art, going against the grain of what the prior art teaches. The prior art teaches document transformation according to an intermediate, universal semantic model or a common representation, rather than between source and destination, each of which are separately modeled.
- 5) The OA has made a strained interpretation of the references (Georgalas, et. al.) that could be made only by hindsight in light of Applicant's invention.
- 6) The invention utilizes a new principle of operation and Applicant has blazed a trail, rather than followed one. Applicant's approach to data transformation using semantic modeling of sources and destinations, and of mappings between them, provides an architecture that enables iterative and adaptive document-based profiling, cleansing, normalization, and transformation.
- 7) Applicant's invention solves a different problem than each of the cited references, and such different problem is cited in the claims. *In re Wright*, 6 USPQ 2d 1959 (1988).
- 8) The cited references (Georgalas, et. al.) are from very different fields than that of the invention, and so are "nonanalogous art."

**The Novel Features Of New Claim 42 Produce New And Unexpected Results And Hence Are Unobvious And Patentable Over This Reference Under Section 103**

Applicant submits that the novel features of new Claim 42 are also unobvious and hence patentable under section 103 since they produce new and unexpected results over the cited references (Georgalas, et. al.). New claim 42 incorporates all the elements of old Claim 1.

These new and unexpected results are the ability of Applicant's system to address data validation, transformation, normalization, cleansing, and profiling, as well as semantic drift and error correction in an adaptive and iterative method.

**Elements In The Prior-Art Have Been Omitted, And By The Omission Of Elements The Prior-Art Version Is Thus Made Simpler Without Loss Of Capability.**

Even if one of OA's references is assumed to each discloses a number of steps and elements that are omitted in Applicant's invention without loss of capability. These omitted elements and steps have been identified above in context of individual references and of specific claims.

None of these steps and elements are relied upon by Applicant's invention, thereby making Applicant's invention simpler than the methods disclosed by the references, not only without loss of capability but, to the contrary, with a gain in data transformation capabilities not disclosed by any cited reference. Applicant's invention does not depend on any of the particulars of the cited references. Applicant's invention provides an automated, adaptive, and iteratively refinable system for data transformation, profiling, normalization, cleansing, and validation and is superior to the prior art.

**The Cited References Are Misunderstood In That They Do Not Teach What The OA Relies Upon Them As Supposedly Teaching.**

In discussing each of OA's cited references and the OA response to each of Applicant's claims, Applicant has explained the cited reference and provided specific refutation of OA's misunderstanding of the reference (as evidenced by OA's erroneous assertions).

Georgalas's failure to disclose specific methods comparable to those of Applicant's invention, even for simple document transformation between a source and a destination compliant with a particular semantic model and category of knowledge, emphasizes the need and value of methods as disclosed by Applicant's invention, even for the relatively simplistic case of a single business entity and non-distributed environments, let alone application to distributed business document exchange as is mandatory, common, costly, and burdensome in today's businesses.

**The Invention Is Contrary To The Teachings Of The Prior Art, Going Against The Grain Of What The Prior Art Teaches.**

The prior art cited in the OA teaches using a common or standard representation (possibly as an intermediate representation) for document classification and search, new resource creation, genomic data presentation, document indexing, and so on. By contrast, Applicant's invention avoids dependence on the use of a common representation, and more particularly, on a universal semantic model and semantic mediation. These are clearly contrary teachings.

It is well-known to those familiar with the data transformation arts that a standard representation approach does not readily accommodate drift and error correction, a benefit of Applicant's invention.

**The OA Has Made A Strained Interpretation Of The References That Could Be Made Only By Hindsight In Light Of Applicant's Invention.**

As noted in discussing the OA's response to individual claims, OA has made a strained interpretation of the cited references. As the cited references never discuss document-based data transformation, normalization, profiling, cleansing, and validation, let alone of an adaptive and iterative architecture for managing transformations in response to changing semantic models as in Applicant's invention, such a strained interpretation could only be made by hindsight in light of applicant's invention. Such strained interpretation is evidenced by OA's inconsistent interpretation of references and erroneous assertion of equivalences as noted in the above discussion of OA's rejections

of individual claims.

Only in hindsight of Applicant's invention is there any motivation to make such strained interpretations, and said interpretations fail to identify in any reference any hint of document transformation that does not require a common or intermediate representation. Furthermore, even if the OA's reading of the prior art were valid, the references would still not rise to the comprehensive level of Applicant's invention which is more encompassing and powerful than the limited application of "new resource creation" (Georgalas) or "business interface documents" (Meltzer). But the OA's interpretation cannot be valid, since the required elements by which the OA's assertions would be accomplished do not occur in the references.

**The Invention Utilizes A New Principle Of Operation And Applicant Has Blazed A Trail, Rather Than Followed One.**

Applicant's invention introduces new principles of operation in data transformation, namely, representing knowledge about a source or a destination with a plurality of semantic models (each being derived in part from documents and restricted by function so that a set of smaller, more manageable semantic models is used instead of a universal semantic model) organized in a particular manner and avoiding the use of a universal semantic model (e.g., a single monolithic ontology). This new trail casts a new perspective on the value of evolving semantic models for automated data transformation. In contrast to other methods, which attempt to enforce a pre-determined semantics on documents, a fundamental principle of operation of Applicant's invention is the creation and maintenance of content-oriented semantic models, so that transformations can be processed automatically (including error correction as in new Claims 55, 69, 70). Prior art presumed that transformations were pre-defined or at least composed of highly constrained set of steps with a prescribed ordering, and that errors were accommodated by starting over. Prior to the present invention, data transformation and integration systems were incapable of representing the complexity of business document exchange involving a mixture of resources and entities, or adapting a changes in response to a dynamic pattern of operations and requirements. Achieving this capability required

Applicant to blaze a new trail, integrating previously unintegrated techniques in a unique and novel manner to achieve hitherto unforeseen results. Furthermore, certain aspects of the method required to achieve that integration, such as multiple semantic models were each taught against in the prior art.

**Applicant's Invention Solves A Different Problem Than The Cited References, And Such Different Problem Is Cited In The Claims. *In re Wright*, 6 USPQ 2d 1959 (1988).**

As discussed above, each of the cited references solves a problem different than Applicant's invention.

Finally, the OA presented no convincing support or reasoning as to why the Applicant's invention, including its differences over the prior art, would have been obvious.

**The Replacement Dependent Claims 43-81 Are *A Fortiori* Patentable Over  
Georgalas**

Dependent claims 2-40 have been withdrawn and new dependent claims 43-91 submitted. New claims 43-91 incorporate all the subject matter of new Claim 42 and add additional subject matter that makes them *a fortiori* and separately patentable over Georgalas.

**NEW CLAIMS REJECTIONS UNDER 35 USC §103**

**Subsitution of New Claims**

Dependent claims 2-40 have been withdrawn and new dependent claims 43-91 submitted, respectively. New Claims 43-91 incorporate all the subject matter of new Claim 42 and add additional subject matter which makes them *a fortiori* and independently patentable over Georgalas.

**General Remarks**

The OA rejections of dependent Claims 2-40 under 35 USC §103 each depended on a combination of Georgalas with at least one other cited reference. Arguments against the

OA's various combinations with Georgalas have been presented above, and apply equally well to Applicant's new Claims 42-92 which incorporate all the novelty of Claims 1-42 and adds further distinguishing, non-obvious steps. As each combination cited in the OA requires a failed combination with Georgalas, and in light of the novelty of new Claim 42 on which each of the new dependent claims depends, all the new claims are foreign to the OA's proposed combination of references, and Applicant respectfully requests reconsideration of each of new claims 43-91.

Should any of the claims again be rejected, Applicant requests that Examiner provide a specific means by which the proposed combination might be effected rather than a mere assertion that the combination is possible.

#### **New Independent Claim 92**

Inasmuch as none of the prior art cited by OA discloses the necessary operational elements of data transformation driven by semantic models, the necessary operational elements of model mapping, the necessary operational elements of either transformation rules or validation rules, or the necessary operational elements of Applicant's architecture; and none of the prior art cited by OA can be combined with Georgalas, further OA rejection of new Claim 92 on the previous grounds is preemptively traversed.

Applicant respectfully reminds OA that the subject matter of Georgalas is quite distinct from that of Applicant. Again, Applicant's independent claims are entirely foreign to each of Georgalas, Meltzer, Holt, Cha, Lin, Pham, Afeyan, Cheng, and Altschuler, or any combination thereof. For the reasons cited above, Applicant believes that these claims are now allowable.

Applicant has replaced the rejected claim 41 with new Claim 92, an apparatus claim corresponding to the new method Claim 42. Applicant submits that, as the rejection to Claim 41 has been overcome, new apparatus Claim 92 based on it should be allowed.

### **Remarks on Prior Art Not Relied Upon**

OA cited U. S. Patent's 5983169 (Kozma herein), 6434447 (Shetyn herein), and 6957214 (Silberberg herein) as prior art of record and not relied upon, but considered pertinent to applicant's disclosure. None of Kozma, Shetyn, or Silberberg disclose Applicant's claims (either Claims 1-41 or new Claims 42-92) or invention, either individually, in combination with each other, or in combination with Georgalas. None of Kozma, Shetyn, or Silberberg cite any of the others or Georgalas. Thus, there is no reason to combine these references. Kozma, Shetyn, Silberberg, and Georgalas lie in diverse fields of invention and do not even share a U. S. Patent Class. Thus, it is not proper to combine these references with each other.

Kozma is in the field of machine translation of natural language expressions and does not teach data transformation, semantic modeling, or semantic mapping as in Applicant's invention. Shetyn is in the field of controlling (physical) devices connected to a network and does not teach data transformation, semantic modeling, or semantic mapping as in Applicant's invention.

Silberberg is in the field of heterogeneous data access, has a different purpose than and does not teach the use of data transformation, semantic modeling, or semantic mapping methods as in Applicant's invention. More particularly, Silberberg discloses a federated system for processing semantically-driven queries. Silberberg teaches receiving a query according to a user domain, determining data sources that can answer the query, translating the query into a form appropriate to the data source, obtaining result and aggregating them according to a common aggregation domain, and translating the result into a form appropriate to the user domain. As Applicant's invention does not rely on either queries or a common aggregation domain, and as a common aggregation domain corresponds to a common representation or semantic hub which Applicant's invention teaches against, the teaching of Silberberg is contrary to, and incapable of implementing, Applicant's invention.

### **Correspondence Between Claims 1-41 and New Claims 42-92**

New Claims 42-92 include revisions of Claims 1-41 as well as ten new claims. The order of new Claims 42-92 is substantially different from that of Claims 1-41, organizing them so that each claim is as near as possible to those on which it depends (antecedent claims). In order to reduce the burden on Examiner, Applicant has provided a mapping between Claims 1-41 and new Claims 42-92 below.

New Claim Number	Rewritten From	Old Claim Number	Rewritten As
42	1	1	42
43	3	2	64
44	8,9,10,11,12	3	43
45	21	4	73
46	13	5	74
47	16	6	75
48	14	7	65
49	15	8	44
50	16	9	44
51	17	10	44
52	18	11	44
53	19	12	44
54	20	13	46
55	new	14	48
56	new	15	49
57	new	16	47
58	new	17	51
59	new	18	52
60	new	19	53
61	new	20	54
62	new	21	45, 66
63	new	22	67
64	2	23	68,80
65	7	24	85
66	21	25	86
67	22	26	86
68	23	27	87
69	new	28	81
70	new	29	88
71	37,39	30	88
72	38,40	31	89
73	4	32	90
74	5	33	91
75	6	34	82
76	new	35	83
77	new	36	83
78	new	37	71
79	new	38	72
80	23	39	71
81	28	40	72
82	34	41	92
83	35,36		
84	new		
85	24		
86	25,26		
87	27		
88	29,30		
89	31		
90	32		
91	33		
92	41		

## Conclusion

For all of the above reasons, Applicant submits that the claims are now in proper form, and that the claims all define patentably over the prior art. Therefore Applicant submits that this application is now in condition for allowance, which is respectfully solicited.

### Conditional Request For Interview

Applicant has amended the claims of this application so that they are proper, definite, and define novel structure which is also unobvious. If, for any reason this application is not believed to be in full condition for allowance, Applicant respectfully requests an interview with the Examiner prior to the Final OA. Applicant believes that such an interview would be effective in resolving any remaining differences.

Applicant understands that the time for review and response to an application is limited and has attempted to ease the task by making specific, detailed, and directed references for each point, trading the extension of the text for a greatly reduced need to flip back and forth for reference comparisons. It is hoped that this response will meet the concerns, address the limitations or misapprehensions, and identify the specific grounds for determination of the Applicant's right to continued prosecution, without necessitating such a change. If there are any questions concerning this case, please direct the inquiry to David McGoveran at (831) 338-4621 or mcgoveran@AlternativeTech.com.

Respectfully submitted:

  
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